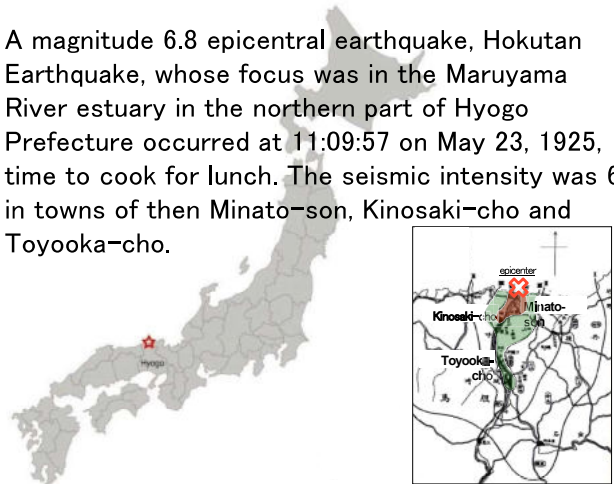


TOYOOKA AND KINOSAKI; TOWNS THAT HAVE RECOVERED FROM HOKUTAN EARTHQUAKE

Takayo Matsui

A magnitude 6.8 epicentral earthquake, Hokutan Earthquake, whose focus was in the Maruyama River estuary in the northern part of Hyogo Prefecture occurred at 11:09:57 on May 23, 1925, time to cook for lunch. The seismic intensity was 6 in towns of then Minato-son, Kinosaki-cho and Toyooka-cho.



Tsuiyama area

In Minato-son, near the epicenter, many people were crushed to death due to instant building collapse.

In Tsuiyama area (on the left bank of the river), of all 250 houses, 145 were burnt down and 105 were destroyed.



Tai area

In Tai area (on the right bank), no fire occurred while some people were crushed to death. In Kehi area, only three houses were burnt owing to the exertions of the citizens' fire companies.

In Tai area, the residents continue to go up to the shrine of "Ujigami(Local Deity)" and do "Osendo-Mairi(One thousand times' worship)" on May 23 every year.

They walk around the shrine holding wooden bill early in the morning.

After the prayer, the representative mentions that no-one was burnt to death by prioritizing the fire fighting.



Earthquake disaster monument

In Toyooka-cho, cooking fires for lunch caused fire break-out in various parts of the town.

Though extinguished once in the afternoon, fire broke out again around 2pm and spread to the central area except for northern part of the town, Odai area.

85% of the entire town was burnt or damaged.



Toyooka-cho

Toyooka-cho and Kinosaki-cho, which had been devastated, planned a contrasting town development for recovery from the earthquake.

Toyooka-cho, which had planned a modernization city planning just before the earthquake, pushed the plan further.

It placed a Civic Center in the center of the station street, with the road straightening and widening. Reinforced concrete construction was recommended for private houses to have a role of fire protection zone.

Even now, more than 90 years later, modernization heritages as Kotobuki Rotary(roundabout), lattice roads, reinforced concrete buildings, etc., remain, making a landscape of Toyooka city.



Central Toyooka just after the earthquake



Kotobuki Rotary (Roundabout)



Reinforced concrete buildings along station street

In Kinosaki-cho, being located in a valley region surrounded by mountains on three sides and dense with two or three-story buildings, fire for preparation for lunch at hot spring inns spread in a flash and almost the whole town was burnt down.

272, nearly 8% of the town's population was killed, including 40 guests. More than 70% of the deaths were women.



Kinosaki-cho

In Kinosaki-cho, the residents decided to rebuild hot-spring inns, etc. with wooden construction as it had been for preservation of their townscape.

Otani River, which often flooded, was widened, deepened while the ground of both banks being raised by dredged soil-sand. Winding roads were straightened and widened. The revetments were stonewalled basalt while parapets and reinforced concrete bow bridges were built.

Decisions were made by the residents themselves through many discussions, which preserved the present townscape with historical taste as a result.



Bird's Eye View "Tourism Guide of Kinosaki-Spa in progress"(1938)



Townscape of Kinosaki-spa and Otani River



Fire Drill and Memorial Service 2017



In Kinosaki-cho, a fire drill is held every year on the morning of May 23rd. After the siren at the time of the earthquake, the residents pray along with the priest's reading in front of the disaster victim tower.

On the same day, in Kinosaki Elementary School, children listen to a lesson about the earthquake and conduct a evacuation drill every year since the disaster.

In 2015, "Toyooka Machi Juku (a society for studying townscape)" was formed in order that the townscape which consists of remnants of recovery from the earthquake would be known to local residents – diagonal and lattice streets in the city center, so-called "Reconstruction Buildings" installed as fireproof belt and wooden houses deliberately built for fire preservation.

In 1982, also, "Kinosaki Onsen Machinami no Kai (a society for preservation of townscape)" was formed. The purpose of the society is to keep the identity and atmosphere of Kinosaki created by the Otani River which flows the center of the town, bridges, lines of willow and two or three-story buildings along the river.

Each of these societies do activities which is rooted locally.

August 20, 2014
The Mountain
Where Dragons Live

from 8.20 Torrential Rain Disaster in Hiroshima City

ドラゴンが棲む山 - 8.20 広島豪雨災害 -

Reconstruction & Interaction House

Mondragon

復興交流館 モンドラゴン

Director Ken Matsui

事務局長 松井 憲



August 20, 2014

2014年8月20日





That disaster,
took the lives of
77 people,
Injured many people...

あの災害は
77人もの命を奪い、
多くの人にケガを負わせ、

Broke homes,
buildings,
roads ...

住まいを
建物を
道路を 壊した...

Complete / half destruction,
damage ... 418 units
Floor / underfloor
inundation ... 4,091 units

全半壊・損壊...418戸
床上・床下浸水...4,091戸

In addition,
Residents' hearts
It was broken ...

そのうえ、
住民の心を
壊していた...

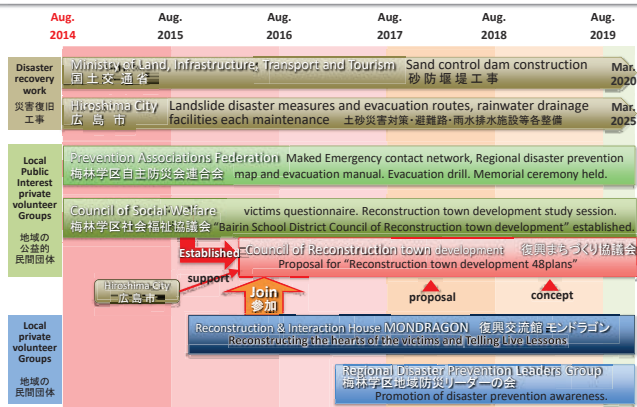
Bairin School District
During 8.20 Torrential Rain Disaster in Hiroshima

August 20, 2014



Organization involved in the restoration and reconstruction of Bairin School District

梅林学区の復旧・復興に掛かる団体組織



Ministry of Land, Infrastructure, Transport and Tourism

Disaster recovery work
災害復旧工事

国土交通省

From the disaster	Period Date	Content
next month	6 years	Sand control dam construction 25 units initially → 40units 砂防堰堤工事 当初25基 → 40基

Hiroshima City

Disaster recovery work
災害復旧工事

広島市

From the disaster	Period Date	Content
7 months	10 years Mar. 2015~	Announcement of "Reconstruction town development vision" Landslide disaster measures and evacuation routes, rainwater drainage facilities each maintenance 『復興まちづくりビジョン』発表 土砂災害対策・避難路・雨水排水施設等各整備

● **Hiroshima City** 広島市

From the disaster	Period Date	Content
1 year	Aug. 2015 ~ 2017 3 times	Memorial ceremony held (to 3 years Prefecture City, co-hosted) 追悼式典開催 (〜3年 市県共催)
		
1 year 4 months	Dec. 2015 ~	Started support for community reconstruction activities for residents Council of Social Welfare → Council of Reconstruction town development 住民の復興まちづくり活動の支援開始 社会福祉協議会 → 復興まちづくり協議会

● **Bairin School District Prevention Associations Federation** 梅林学区自主防災会連合会

Disaster prevention organization by local residents determined by the Disaster Countermeasure Basic Act

Attribute	From the disaster	Period Date	Content
4 months	6 times Dec. 2014 ~ May 2015	Maked Emergency contact network for residents, Regional disaster prevention map and evacuation manual 住民緊急連絡網・地域防災マップ・避難マニュアル作成	
10 months	June 2015	Evacuation drill (200 → 1,700 people) 避難訓練実施 (例年200人→1,700人)	
1 year	every Aug. 20	Memorial ceremony held 追悼式典開催	



● **Bairin School District Regional Disaster Prevention Leaders Group** 梅林学区地域防災リーダーの会

School district disaster prevention leader volunteer group.
Promotion of disaster prevention awareness.
学区防災リーダーのボランティア・グループ。防災啓蒙推進

From the disaster	Period Date	Content
2 year 8 months	Apr. 2017	Preparation for launch 発会準備
3 year 8 months	Apr. 2018	Starting (with 10 people, currently 12 people) Held a study session once a month 発会 (10名でスタート、現12名) 勉強会 (毎月1回)
4 year 11 months	Jul. & Nov. 2019	Disaster prevention class at Bairin Elementary School 梅林小学校で防災教室 (2019年7月, 11月)

Build a facility to deepen bonds between residents, aiming for "Reconstruction of the heart" ...

住民どうしの絆を
深めるための施設を建設し、
“こころの復興”を目指したい...

Children and grandchildren for the next generation
We want to connect the idea of disaster prevention

子や孫たち 次世代に
防災減災の想いを繋ぎたい...

Reconstruction & Interaction House
● **Mondragon** 復興交流館 モンドラゴン

Attribute: Volunteer group centered on victims.
被災者を中心にしたボランティア・グループ

Theme	テーマ
Reconstructing the hearts of the victims And Telling Live Lessons - 復興と伝承 -	

The goal of the activity	活動の目標
In 3-5 years, Act aggressively and broadly, become a local symbol, We aim to build facilities and build permanent systems. 3〜5年間で地域のシンボルになるよう 積極的かつ広範囲な活動を行い、恒久的な制度・施設の建設を目指す。	



Reconstruction & Interaction House Mondragon 復興交流館 モンドラゴン		
From the disaster	Period Date	Content
1 year 4 months	Dec. 2015	Established (with 13 victims, now 22 people) 発足 (被災者13名でスタート、現22名)
1 year 8 months	Apr. 2016	Opening
4 year 10 months	Oct. 2018	Over 10,000 visitors (after open 31 months) 来訪10,000人超 (open31ヶ月後)
Fundraising	Donations from individuals, organizations and companies are 44%, Sales are 40%, Disaster relief is 10%, City subsidies are 6%, 寄付...44%、売上...40%、災害義援金...10%、補助金...6%	



Reconstruction & Interaction House Mondragon 復興交流館 モンドラゴン		
Activity category	Disaster victim support 被災者支援	
Reconstruction of the victims of heart Okonomiyaki Canteen	被災者の心の復興 お好み焼き食堂	
Community rebirth salon/classroom Seasonal events Flower garden planting Lecture (family care / life related) Support that can be done by victims	コミュニティ再生	
Building a network with the affected areas Share of the affected areas reconstruction wisdom and skills 被災地とのネットワークの構築 被災地復興の知恵やスキルの共有		

Reconstruction & Interaction House Mondragon 復興交流館 モンドラゴン		
Activity category	Telling Live Lessons 伝承(語り継ぎ)	
Collection, exhibition and Storage of materials	資料の収集・展示・保管	
Explanation of materials	資料の解説	
Disaster area guide and explanation	被災地ガイド・説明	
Storyteller	語り部活動	
Collection and digitalization of old documents	古文書の収集・デジタル化	





Reconstruction & Interaction House
Mondragon 復興交流館 モンドラゴン

Activity category: Disaster prevention 防災啓蒙

Disaster prevention classroom / lecture / forum 防災教室・講演会・フォーラムの開催

Installation of surveillance cameras and rain gauges 監視カメラ・雨量計の設置

Visit the museum 災害関連資料館の視察行

Production and independent screening of disaster prevention enlightenment movies 防災啓蒙映画の製作・自主上映

Acceptance of inspection (Administration・general) research groups and students 視察(行政・一般)研究団体・学生の受入れ.....案内・解説

Guide and storyteller

Reconstruction & Interaction House
Mondragon 復興交流館 モンドラゴン

■ Visit status (来館件数) April 3, 2016 to Dec.31, 2019

Fiscal year 年度	Number of Visitors 来訪者数	Number of Visits (来館件数)						total
		Administration 行政	General 一般	Inspection 視察*	research 研究	Students 学生	Media メディア	
total	14,486	85	120	112	49	46	91	503
2016	3,492	16	18	25	20	11	6	96
2017	3,676	20	35	33	18	11	14	131
2018	4,227	28	46	29	9	12	36	160
2019*	2,891	21	21	25	2	12	35	116

* As of Dec.31, 2019 * "Inspection" is a number in "Administration" and "General"
 * 令和元年度(2019年度)一部実績

■ Activity status (活動件数) April 3, 2016 to Dec.31, 2019

Fiscal year 年度	salon/classroom サロン・教室		Seasonal events 季節行事		etc.		Disaster prevention course/lecture 防災 講座・授業	
	times 回数	number of people 人数	times 回数	number of people 人数	times 回数	number of people 人数	times 回数	number of people 人数
total	128	1,288	17	434	5	143	32	4,167
2016	32	336	10	218	4	114	4	197
2017	36	297	2	58			7	814
2018	33	321	2	59			13	1,399
2019*	27	334	3	99	1	29	8	1,757

* As of Dec.31, 2019

Reconstruction & Interaction House
Mondragon 復興交流館 モンドラゴン

Activity category: Participation in local reconstruction activities 地域復興活動への参加

Participating in community development activities 地域のまちづくり活動に参加

Participated in "Bairin School District Council of Reconstruction town development" 『梅林学区復興まちづくり協議会』に参加
 地域部会、コミュニティ専門部会

* At the community special committee Proposed "Reconstruction exchange base facility establishment", Adopted in the recovery town development plan.
 * コミュニティ専門部会にて、「復興交流拠点施設設置」を提案、復興まちづくりプランに採用。

Bairin School District
Council of Social Welfare 梅林学区社会福祉協議会

Attribute: Social welfare organization by local residents, which is defined by the Social Welfare Act

From the disaster: 1 year 3 months

Period Date: Nov. 2015

Content: Disaster area check and victims questionnaire 被災地確認・被災者アンケート

From the disaster: 1 year 4 months

Period Date: Dec. 2015

Content: Reconstruction town development study session ... 4 times 復興まちづくり勉強会開催...4回/月1回


From the disaster: 1 year 10 months

Period Date: June 2016

Content: "Bairin School District Council of Reconstruction town development" established 『梅林学区復興まちづくり協議会』発足

Bairin School District Council of Reconstruction town development 梅林学区復興まちづくり協議会

Attribute	Subordinate organization of Bairin School District Social Welfare Council	
From the disaster	Period Date	Content
1 year 9 months	May 2016	Established (Regional group×5, Specialized group×2) 発足 (地域部会×5, 専門部会×2)
3 year 5 months	Jan. 2018	Proposal to the Mayor of Hiroshima for "Reconstruction town development 48plans" 『復興まちづくりプラン』を広島市長へ提言



Bairin School District Council of Reconstruction town development 梅林学区復興まちづくり協議会

Activity	Creating of "Reconstruction town development 48plans" 『復興まちづくりプラン』48項目の策定	
Period Date	Content	
Apr.-Dec. 2017	Held 4-5 meeting each at 5 regional groups 2 specialized groups and 4 board meeting 5地域部会 2専門部会で各4～5回 評議委員会を4回開催	
Jan. 2018	Proposal to the Mayor of Hiroshima *community group suggested: 1. Establishment of Telling Live Lessons facilities 2. Conducting disaster drills and classrooms 3. Maintenance, such as walking path that connects the local resources 4. Training the storyteller 5. Collection and storage of materials 6. Revitalizing the community 広島市長へ提言、コミュニティ部会では6項目を提言 1.復興交流施設設置 2.防災訓練・教室実施 3.地域散策路整備 4.語り部育成 5.災害資料収集 6.コミュニティ活性化	

Bairin School District Council of Reconstruction town development 梅林学区復興まちづくり協議会

Activity	Creating of a concept proposal 『復興まちづくりプラン』項目の構想案の策定	
Period Date	Content	
Jul. 2018-Feb. 2019	Held 8 meeting at community specialized group and 1 board meeting コミュニティ専門部会 8回, 評議委員会を1回開催	
Feb. 2019	Submit a concept proposal to Hiroshima City Community specialized group : "Telling Live Lessons facilities establishment concept plan" The first block regional group : "Park maintenance plan" 構想案を広島市へ提言 コミュニティ部会 : 「復興交流拠点施設 整備構想」 第1地域部会 : 「第1ブロック 公園整備構想」	

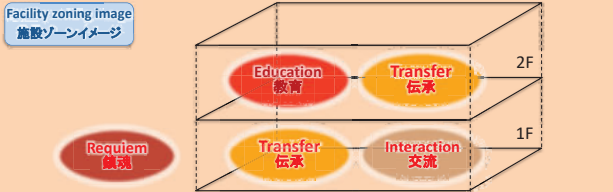
Telling Live Lessons facilities 復興交流拠点施設 整備構想 establishment concept plan

Main functions 主要機能

- A place to transfer disaster memories and experiences 災害の記憶と経験の伝承の場
- A place to disaster prevention education 防災教育の場
- A place to people interaction 人々の交流の場
- A place to mourning and requiem 哀悼と鎮魂の場

Protect your life from any disaster あらゆる災害から命を守る

Facility zoning image 施設ゾーニングイメージ



Telling Live Lessons facilities 復興交流拠点施設 整備構想 establishment concept plan

Incorporation Functions 導入機能
1. Telling Live Lessons 災害の記憶の伝承
2. Display of disaster memories 災害の記録の展示
3. Disaster prevention education 防災教育
4. External collaboration / Acceptance of inspection 外部連携 / 視察受入
5. Public relations / Transmission of information 広報 / 情報発信
6. Interaction / Communication 交流・コミュニティ

- Listed the functions performed by the base facilities 拠点施設としての機能をリストアップ
- For each item, the role sharing between Hiroshima City and residents was roughly assumed. 各項目につき、市民の役割分担を想定
- In the future, we will examine facility specifications, construction site selection, access, construction work plans, and management systems 今後、施設仕様・建設地選定・アクセス・工事計画・管理・運営等を検討
- Aimed at opening of the 2022 fiscal year. 2022年度の開館を目指している

Telling Live Lessons facilities 復興交流拠点施設 整備構想 establishment concept plan

Expansion of the experience of past activities at MONDRAGON これまでの復興交流館 モンドラゴンでの活動経験の展開

1. Standardization of the "storyteller" 1. 「語り部」の標準化	3. Facility branding 3. 施設ブランド化
2. Search for a new form of "storyteller" 2. 「語り部」新しい形の模索	教育例: ・オリジナル研修の開発 ・エスノグラフィー・オリジナルシナリオ作成 ・トレーナー認定制度・ライセンス発行 ・受講終了証(カード)発行
3. Facility branding In the education example: ・ Development of original training ・ Creating an original scenario for disaster ethnography ・ Trainer certification system adopted ・ Certificate of completion (card) issued	

Future plans 将来構想

Using this facility as a base, I would like to link the areas organically and make the whole Bairin school district a park with the theme of disaster prevention.
施設を拠点として、梅林学区全体を有機的にリンクした防災パークに...

**“Reconstruction
of the heart”
of the disaster area residents ...**

被災地住民の
“こころの復興”

**Regeneration
of
community
of residents ...**

住民の
コミュニティの再生

**For
next generation
disaster mitigation ...**

次世代の
減災に向けて

**Telling Live Lessons
this disaster
to the next generation...**

次世代へ
語り継いでいきたい



**Thank you
for
your support.**

皆様のご支援を
お願いします。

Reconstruction & Interaction House
Mondragon

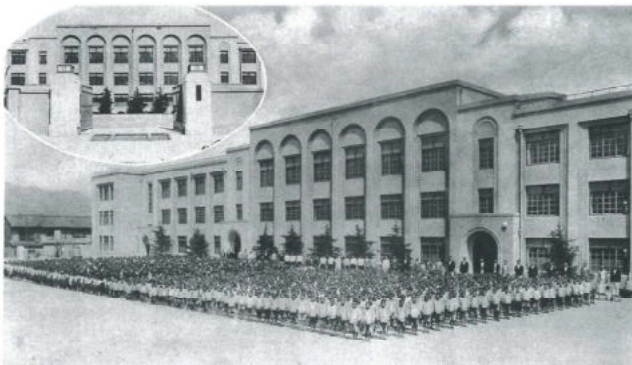
Reconstruction & Interaction House
Planning: **Mondragon**
Product by: Office Kysh @2019~2020

山住勝利
Katsutoshi Yamazumi

Reviving the Memories of the Local Community through Earthquake Disaster Experiential Learning

Katsutoshi YAMAZUMI

(Chief, Earthquake Disaster Experience Learning Lab. Futaba Gakusha)



Futaba Elementary School (1929)



Futaba Gakusha (2010-)

The Great Hanshin Awaji Earthquake struck on January 17, 1995.

Futaba Elementary School, located in the south-west area of Nagata ward in Kobe city, became an evacuation center for many victims of the earthquake

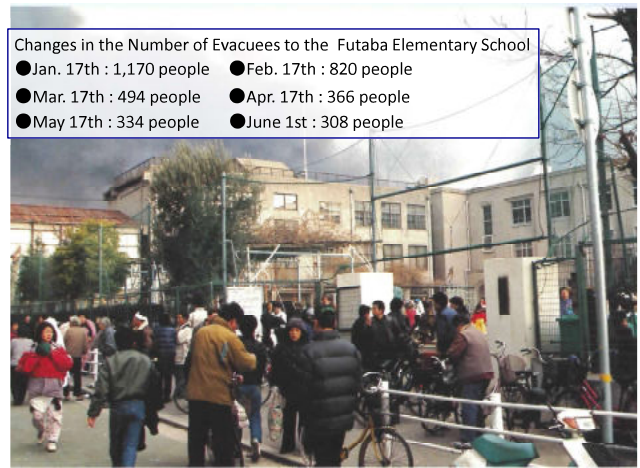


Courtesy of Kobe City



Taisho shopping street

Courtesy of Kobe City



Courtesy of Kobe City



The assembly hall of the Futaba Elementary School became an evacuation center during the Great Hanshin-Awaji Earthquake.

The Futaba Gakusha's earthquake disaster experiential learning programs

The Futaba Gakusha's earthquake disaster experiential learning programs have been developed based on the memories of the local community related to the Great Hanshin Awaji earthquake. Furthermore, this building (the former Futaba Elementary School and current Futaba Gakusha), which was able to survive the earthquake, acts as a physical reminder that helps to better reinforce such memories.



Evacuation center experience : participants use cardboard boxes to make their own evacuation space. By experiencing first hand the living environment at an evacuation center, the participants can get an idea of what it is like to stay there during a disaster.



Stories about actual earthquake experiences: the aim of this activity is for participants to hear first-hand accounts of the Great Hanshin Awaji Earthquake from people who actually experienced it, and to understand the fear of such a disaster from a personal perspective, as well as get a sense of the bonds between people and consideration shown that helped the victims of the earthquake disaster to overcome it.

Comments from the Earthquake Disaster Experiential Learning Activity Participants (Junior High School Students)

"Although I had previously thought that I could just deal with an earthquake after it has occurred, this experience helped me to drastically change such thinking."

"I was very shocked to hear about how hundreds of people died in Nagata Ward."

"By actually experiencing the evacuation shelter, I was able to learn how difficult life must have been, and I felt as though I couldn't live under such conditions for more than a couple of days."

"This was a very useful experience, and although I previously had absolutely no interest, this experiential learning activity helped to excite my curiosity, and I felt that I need to learn to be more vigilant in the future."

"It was easy to visualize the stories of the people who experienced this ordeal, and it helped me understand how difficult it must have been. Since I never had the chance to hear about life at the evacuation shelter in such detail, this was a very good experience for me."

"I hope that I am able to take what I have learned today and to make use of it whenever the Nankai Trough earthquake happens to occur."

THE DEVELOPMENT OF “BENCANA” BOARD GAME AS A DISASTER EDUCATION TOOL IN PRIMARY SCHOOLS.

A STUDY ON SK KAMPONG KARANG, KUALA KRAI, KELANTAN & SK BUKIT TANGGA, KEDAH (STAGE 3: PILOT PROGRAM IMPLEMENTATION)

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PRESENTATION OUTLINE

- Background of Study
- Aim & Objectives
- Method of Study
- Pilot Stage
- Initial Findings
- Future Work

BACKGROUND OF STUDY

- In December 2014, three states in Malaysia, Pahang, Terengganu and Kelantan received heavy rains which led to a massive flood which was locally termed as the “Yellow Flood”.
- The state of Kelantan suffered the biggest impact of this flood, where 8 of 10 territories were inundated, leading to destruction of livelihood of local communities.
- Although massive floods were not a foreign occurrence in Kelantan, the locals admitted to not have expected the severe devastation caused by the 2014 flood. It was the worst flood experienced in 100 years.
- Many schools were shut down for more than 2 weeks due to seas of mud in the buildings and the access roads were destroyed during the flood.

BACKGROUND OF STUDY

- Children who have been taught about the phenomenon of disasters and how to react to those situations have proved to be able to respond promptly and appropriately, thereby warning others and protecting themselves during times of emergencies (Shaw et al, 2015)
- The importance of disaster education at school is increasing because of the following reasons (Shiwaku, 2009; UN/ISDR 2006):
 - children are one of the most vulnerable sections of the society during a disaster;
 - they represent the future;
 - school serves as a community's central location for meetings and group activities;
 - effects of education can be transferred to parents and community

BACKGROUND OF STUDY

- The formulation of an effective disaster education programs should include collaborations with the researchers, local community and school so so that the learning process not only be based on hard facts but also cross-learning through sharing of stories, facts and cultural approaches (Shaw et al, 2015; Petal, 2008; Sharma, 2008).
- Paton (2005) highlighted the need for integrating community development initiatives to increase resilience with disaster education and facilitate self-help capacities within the vulnerable community to reduce the reliance on external response and recovery resources.

GAMES – AN INDISPENSABLE TOOL IN DISASTER EDUCATION

- The attention span is an important consideration in the education of young people. This tendency is for a positive relationship between the distance of attention and the level of teaching of teaching techniques.
- Therefore, games, simulations and games are an effective tool for delivering disaster knowledge to children. However, the importance of details and accuracy of information is not sacrificed for teaching. Children who have the same age can respond differently to the techniques used for their education.
- Therefore, due consideration should be paid to the means of communication used in the dissemination of disaster risk information to young children and must cover a variety of interactive and visual techniques and, as far as possible, including hands-on learning and experience (Wisner, 2006).

AIM OF STUDY

Through collaborative efforts and expertise, this research shall focus on the **issues of community resilience and safety** and how **disaster education in primary schools** may benefit the **overall community preparedness**.

OBJECTIVE

- To explore school community awareness and preparedness toward flood disaster
- To explore school community knowledge on disaster risk reduction and knowledge how to reduce risk due to disaster
- To identify current initiatives on disaster risk reduction among school children undertaken by the school
- To propose a disaster related board game that can be applied by the primary school in flood disaster prone area

This presentation reports Stage 3 of the study – the pre-development stage of "Bencana" Board Game in SK Kampong Karangan, Kelantan and SK Bukit Tinggi, Kedah.

METHOD OF STUDY

Stage 1: Literature study of disaster education program in schools.

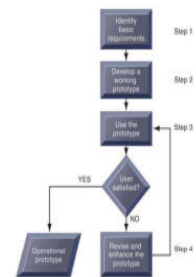
Stage 2: Fieldwork – Semi Structured Interview with School administrators, students, community leaders.

Stage 3: Fieldwork – Pilot Stage of Bencana Board Game implementation.

Stage 4: Integration of data and revisions to the Bencana Board Game – ready for periodic future implementation

STAGE 3 – BOARD GAME DEVELOPMENT

- This stage involves the development of the game prototype. Development of a prototype also requires choosing a suitable methodology.
- The prototyping process consists of four step model which is adapted from Laudon (2000).
- In this study prototyping process involves four steps, where the first step is identify basic requirement, step two develop initial prototype, step three use the prototype step four evaluate as operational prototype or revise and enhance the prototype.
- Two focus group sessions were conducted in 2 primary schools; one school located in disaster prone area indicating that the students may have experience disaster and the other school is located in a relatively safe area thus the students may not have experience disaster previously.



PILOT STAGE – BOARD GAME TESTING (1)



KEY FINDINGS (1) – PILOT STAGE IN SK KAMPONG KARANGAN, KELANTAN

- Only 35% of the students got the information on disaster from their teachers – this is because disaster education is not included in the National Curriculum for Primary Schools.
- Television & Newspaper are their main source of information when it comes to disasters.
- Students feel that loss of property is the biggest effect of disaster while loss of human life is considered minimal when it comes to flood disaster.



KEY FINDINGS (1)

– PILOT STAGE IN SK KAMPONG KARANGAN

- While the students feel that the game is interesting and has simple rules, they feel that the questions part of this game is very challenging - this could be due to their lack of technical knowledge in disaster preparedness.
- The game was tested for Year 3 and Year 4 students. It was apparent that the Year 4 student thoroughly enjoyed the game more and understood the questions - Kelantan locals spoke a slightly different dialect compared to the rest of Malaysia and this may cause some misunderstanding of terminologies for younger students.
- 90% of the students feel that the board game is very useful to add their knowledge in disaster preparedness, look forward to play the game again and are happy with the design aspects of the game.

PILOT STAGE –

BOARD GAME TESTING (2)



KEY FINDINGS (2)

– PILOT STAGE IN SK BUKIT TANGGA, KEDAH

- While the students feel that the game is interesting and has simple rules
 - Students' awareness level increased after playing board game.
- The game was tested for Year 4 and Year 5 students. It shows that they are enjoyed the game and understood the questions.
- 90% of the students feel that the board game is very useful to add their knowledge in disaster preparedness, look forward to play the game again and are happy with the design aspects of the game.

FUTURE WORK

- An improved version of the board game will be developed by making revisions in the following aspects;
 - Level of difficulty for questions suitable for Year 3 and 4 students (age 9-10)
 - Linguistics aspects for the regulations & questions – suitable for local understanding.
 - Materials and images (to avoid copyright infringement)
 - Increasing the size of the game – enlarge to be 3m x 3m so students can stand on the mat, taking into consideration of the children's natural characteristics (active, moving, physical activity is preferred)
 - Including the role of the teacher to be the game master, so this could be a class activity to teach disaster preparedness.

THANK YOU FOR YOUR TIME

自ら語ってくれない大地の声を伝える

私の郷里 兵庫県芦屋市 六甲山の南麓

A composite image. On the left is a modern Scoutmaster, a man with glasses wearing a tan Scoutmaster's uniform with a red neckerchief and a tan hat. On the right is a vintage black and white group photo of a Scout troop. The photo shows several Scouts in uniforms and hats, some holding logs. A red circle is drawn around a Scout in the back row of the vintage photo.



44か国161地域がユネスコ世界ジオパーク(2004年～2020年1月現在)

日本ジオパーク - 44地域

白馬 三岳 ▲オホセ山脈 ●磐梯朝霞火山 ●アズミ岳 赤坂
 ▲横谷自然 奥美濃・北国 三岳 奥美濃・奥美濃 全支庁 磐梯山脈
 長閑 磐梯山 ●奥美濃 奥美濃山脈 立山連峰 奥美濃山脈
 白山系(関) 大正田 ●磐梯 奥美濃山脈(ふくしま) 奥美濃山脈
 ●山梨県 磐梯 奥美濃山脈 磐梯 磐梯 磐梯山脈 ●磐梯山脈
 山梨県(関) 奥美濃山脈 奥美濃山脈 ●磐梯山脈
 ●奥美濃山脈 ●磐梯 奥美濃山脈(ふくしま) 奥美濃山脈 ●磐梯山脈
 ●奥美濃山脈 ●磐梯 奥美濃山脈(ふくしま) 奥美濃山脈 ●磐梯山脈

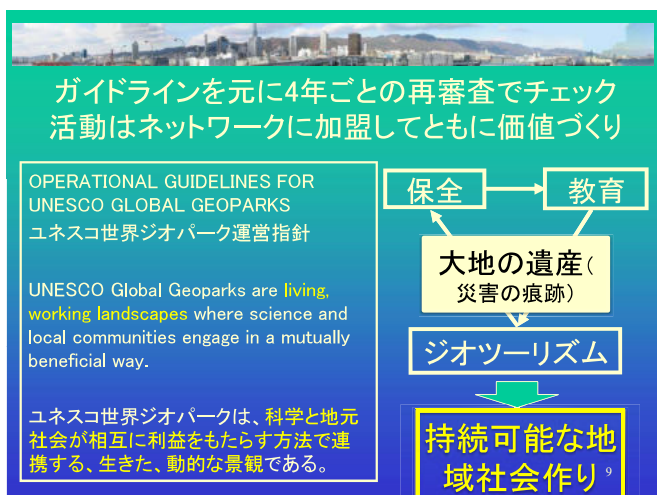
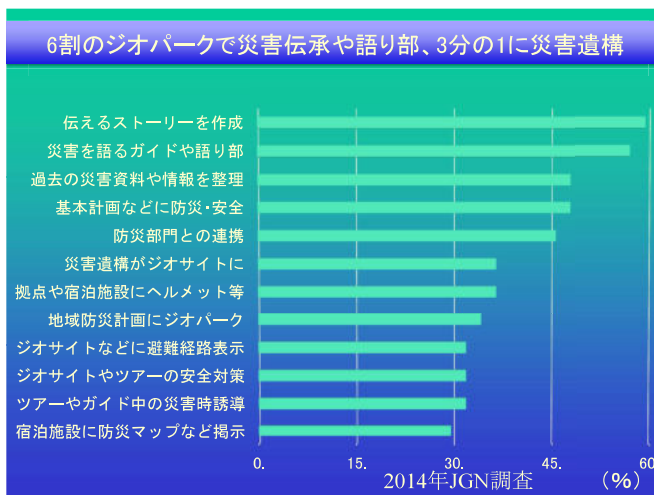
★はユネスコ世界ジオパークにも認定

ジオパークを登録する地域 - 15地域

吉野東海温泉 龍王 阿蘇山脈 北九州 土佐清水 丹波 十勝
 三宅島 第三回 磐梯山脈 三好村 五所川原 阿蘇山脈 上川中部
 宮城郡北

● ユネスコ世界ジオパーク
 ● 日本ジオパーク
 ● ジオパークを登録する地域

世界ジオパーク認定9地域
日本ジオパーク認定35地域
合計33都道府県150市町村



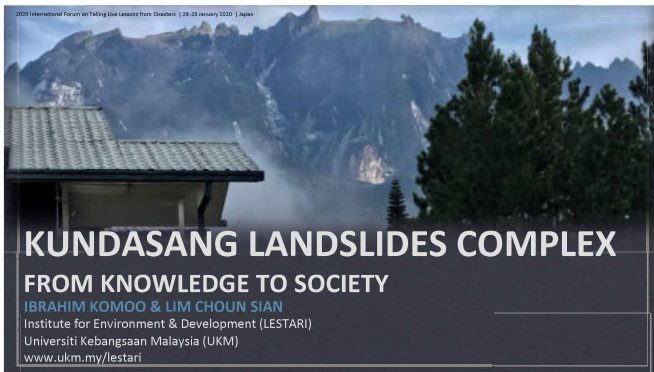
- ユネスコ世界ジオパーク運営指針
- ❖ UNESCO Global Geoparks use geological heritage, in connection with all other aspects of that area's natural and cultural heritage, to enhance awareness and understanding of key issues facing society in the context of the dynamic planet we all live on.
 - ❖ ユネスコ・グローバル・ジオパークは、当該地域の自然・文化遺産のあらゆる分野と関連した地質遺産をもって、我々が暮らす変動する惑星の中で、**社会が直面している重要課題への意識と理解を高める。**
 - ❖ including but not limited to increasing knowledge and understanding of: geoprocesses; **geohazards**; **climate change**; the need for the sustainable use of Earth's natural resources; the evolution of life and the empowerment of indigenous peoples.
 - ❖ 重要課題には、地球科学的プロセス、**ジオハザード**、**気候変動**、地球の自然資源の持続的利用の必要性、生命の進化と先住民のエンパワーメントに関する、知識と理解の増大が含まれるが、それに限定されない。

- みなさんと議論したいこと
- ❖ ジオパークならではの語り継ぎ方とはなにか。
 - ❖ ジオの恵みと、ハザードの災いを、どのように伝えるか。
 - ❖ 語らない大地を、誰がどのように語らせるのか。
 - ❖ ジオパークで培った手法を、社会にどう活用してもらうか。

- ❖ 共同座長のイブラヒム コモオ氏は、アジア太平洋ジオパークネットワーク コーディネーターで地質学者、土砂災害の専門家でもあり、日本では見られない古い大地が特徴のマレーシアのランカウイユネスコ世界ジオパークを率いています。ジオパークの地域ではないです、世界自然遺産に認定されているマレーシアのキナバル山の麓での地すべり災害の事例を紹介いただきます。
- ❖ パネリストのナンシー アグダ氏は、フィリピン大学国立地質科学研究所に所属する地質学者で、国内で新たなジオパークをスタートさせようとしています。フィリピンは、南海トラフ地震を引き起こすフィリピン海プレートの西南側にあり、地震や火山、台風も多い地域。ジオパークの考え方を活かした災害からの復興を進めている事例を報告いただきます。



- ❖ 西谷香奈氏は、日本のジオパーク運動が始まる以前からのプロのネイチャーガイドで伊豆大島ジオパーク推進委員会の委員です。数十年に1度繰り返される火山噴火だけでなく、土砂災害や昨年の台風15号などの災害について、ガイドという立場でどう語るのかの悩みなど、火山島伊豆大島での具体的な事例を紹介いただきます。
- ❖ 地質学の博士号を持つ柴田伊廣氏は、現在は文化庁文化財第二課で天然記念物を担当。入庁前は室戸ユネスコ世界ジオパークの専門員で、日本ジオパーク委員会調査運営部会員でもあります。阪神大震災を起こした地震によって地表に現れた野島断層などの天然記念物の現状とともに、地域でボトムアップな利活用を進めようとしている熊本地震の布田川断層の状況などについて、紹介いただきます。



KUNDASANG TOWN

- an highland agriculture
- Gateway to Mt. Kinabalu (410m) – World Heritage Site
- Small town surrounded with many villages
- Elevation more than 1000m, slope 5 – 25 degree
- Major issue: ground instability



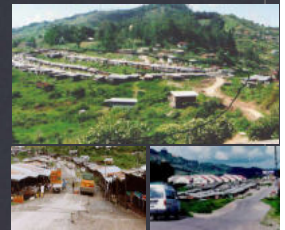
Early Discovery of the Landslide

- *Tanah Pandai Berlari* (soils easily running)
- what they observed: ground gives rise to different varieties of inconveniences - land more susceptible to depression, lateral movements & various manifestations of instability
- living with danger
- learning to adapt with ground movements

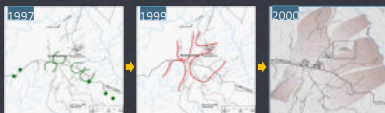


AUTHORITY'S APPROACH TO GROUND INSTABILITY

- they know about ground instability, especially about 'road depressions' but not aware about large-scale landslides
- does not exist planned control & mitigating measures
- short-term measures: repairing basic utilities such as water pipes, electric poles and village roads
- investigation and remedial measures of failures along major roads



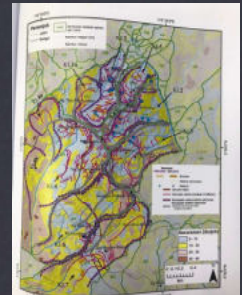
EARLY OBSERVATION



- Early observation and mapping (1997 – 1999)
- Kundasang is under the threat of 5 large-scale landslides systems each measures around 1000m length & 500m wide
- Signs of landslide: slope failures, road depression, tilted houses and lamp posts; water pipe burst; ground cracks, bulging and seepages because of the large size, unclear boundary and slow movement – many are aware of their existence

SYSTEMATIC LANDSLIDE MAPPING

- Systematic landslide mapping was conducted in 2000-2002
- Utilizing several thematic maps – DSM IFSAR; River basin map; satellite SPOT
- Geomorphological interpretation
- Field mapping
- Detailed deformation mapping
- Landslide synthesis map
- Large-scale landslide complex



FAILURES AT KUNDASANG SCHOOL & ZEN

Kundasang Secondary School

- gentle sloping ridge was leveled for the school
- located at the boundary of two large-scale landslide systems
- one of landslide scarp intersects the school's 3 building, causing the building to break into two parts
- These resulted the building has to be demolished, and finally the school to be relocated



FAILURES AT KUNDASANG SCHOOL & ZEN

Zen Garden Hotel

- the hotel was built at steeper slopes using the 'cut and filled' method
- medium size slope failure occurred and destroyed a row of hotel building
- This incident provide 'visual image' of landslide damage to public and finally can be used to explain to community the danger of landslide



Impacts to Community

- At large area, the lateral movements were only from few centimeters to several meters per year. These had resulted:
 - Loss of lives, injury & psychological pressure
 - Damage to private properties – house, continuous repair
 - Damage to public properties – schools, roads, water pipes
 - Impact to public conveniences – transportation, water and power supplies
 - Land degradation and boundary



PUBLIC ENGAGEMENT

- Between 2000 to 2003, several public engagements were conducted mainly through meetings and seminars.
- Target groups were:
 - Community leaders of affected areas
 - Local authority and political leaders
 - Public Work Department and other implementing agencies



MITIGATION MEASURES

- Mitigation measures mainly by public authority to protect main roads and government buildings.
- Private properties are still mitigated by their owners.



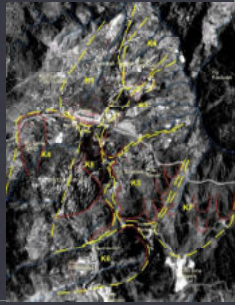
Lesson Learned

- Public and authority are aware that Kundasang is affected by large-scale landslide complex.
- Community leaders are able to inculcate the concept of public safety.
- Public authority provide plans for better mitigation measures.



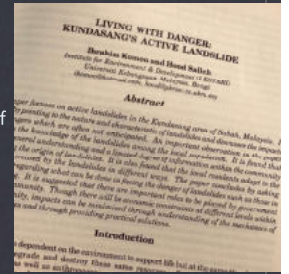
CONCLUDING REMARKS

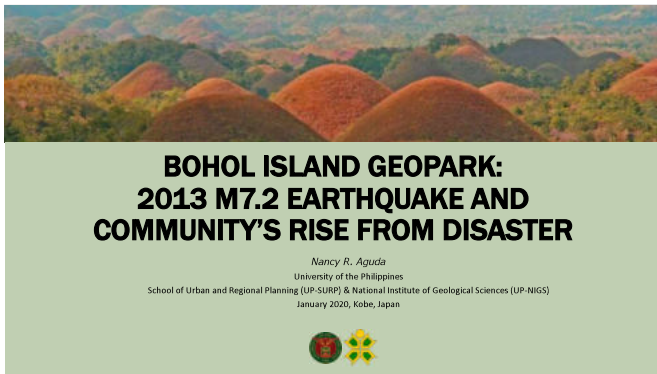
- Large-scale landslide are major issues to the government and the local community. It has great impact to the people and the development of the area.
- For many years, the uncertainty about ground instability has created problem to the development of the area.
- Our detailed scientific research has provide short- and long-term solution to the authority and local community at large.



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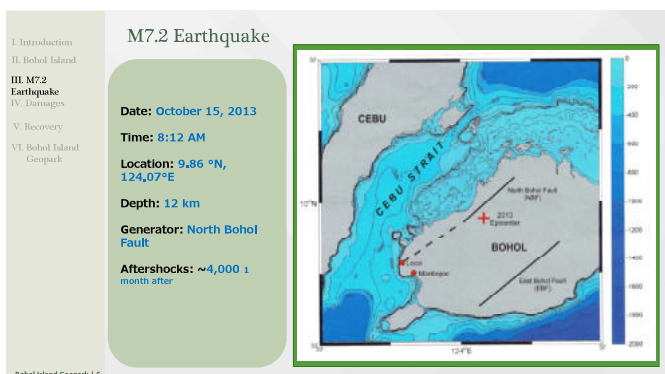
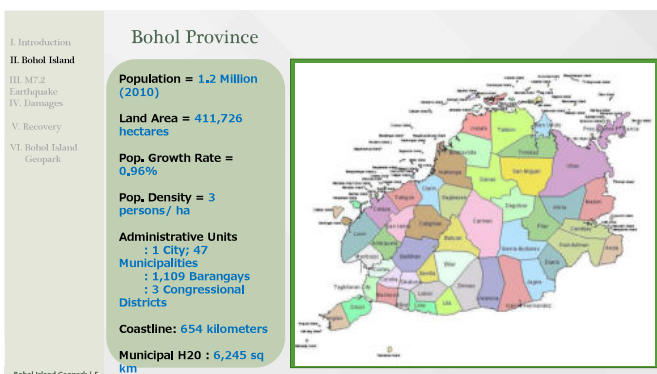
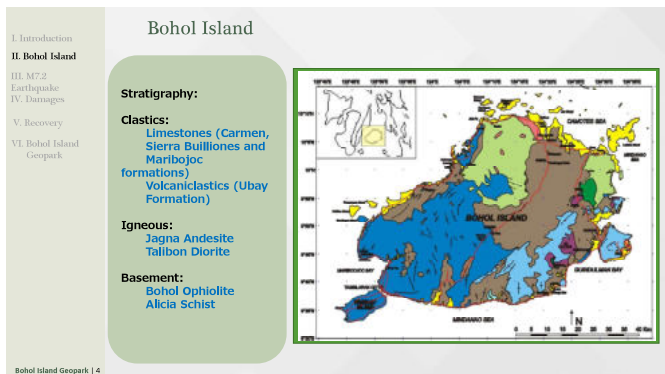
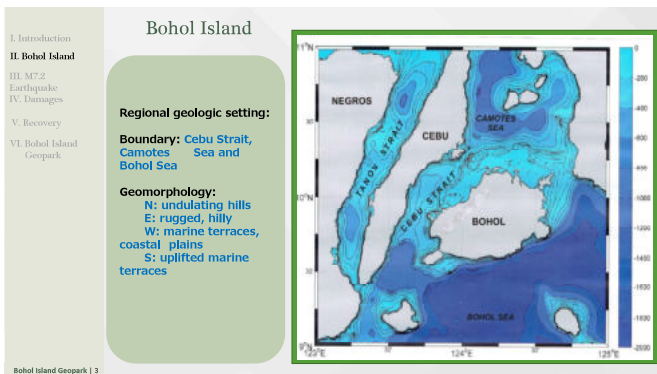
I. Introduction
II. Bohol Island
III. M7.2 Earthquake
IV. Damages
V. Recovery
VI. Bohol Island Geopark

Philippine Setting

Population = 109 Million (2019)
Land Area = 300,000 Th sq km
Coastline: 36,289 km
Pop. Growth Rate = 1.5%
Pop. Density = 368 persons/sq km
Administrative Units
: 18 Regions
: 81 Provinces
: 1,489 Municipalities
: 145 Cities




Bohol Island Geopark | 2



I. Introduction
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Damages

Death: more than 200
Injured: more than 700
No. of persons needed assistance: more than 350,000
Damaged houses: more than 54,000
Affected Localities: 22 out of 48
Cost of damage: 2B Php (50M USD)



Marikopa Coastal Area, 2020

Bohol Island Geopark | 7

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Damages

Bohol Chocolate Hills
Photo: PDI, John Chua

Ground rupture
Anonang, Inabanga
Photo: Phys.org/news, 2013

Damaged houses
Sagbayan, Bohol
Photo: NOAA/LRP EDU PH/AMFLAGMAY

Portion of National Highway
Getafe, Bohol
Photo: Reuters/Enik De Castro

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Recovery and Rehabilitation

Relevant Sectors:
a. Food and Warehouse Cluster
b. Shelter Cluster
c. Protection Cluster
d. Camp Coordination and Camp Management (CCCM) Cluster
e. Health Cluster
f. Water, Sanitation and Hygiene (WASH) Cluster
g. Infrastructure Cluster
h. Government Structures and Facilities
i. Education Cluster
j. Logistics Cluster
k. Livelihood Cluster



POST-GREAT BOHOL EARTHQUAKE REHABILITATION PLAN

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Recovery and Rehabilitation

Baclayon Church
Before 2013 Earthquake
After 2013 Earthquake
Present

Loay Church
Before 2013 Earthquake
After 2013 Earthquake
Present

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Recovery and Rehabilitation

Bohol Provincial Capitol
Before 2013 Earthquake
After 2013 Earthquake
Present

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Bohol Island Geopark

April 2015:
Revisiting Bohol after disaster
Coordination with Bohol Officials re establishment of geopark




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Bohol Island Geopark

2016
Writing of book on Bohol Geopark
2017
Book Launching

Geopark consultations with technical volunteers, Bohol Province officials, National agencies
Geopark consultations with technical volunteers, Bohol local govt officials, National agencies





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Bohol Island Geopark

Oct 2017
4th Bohol Earthquake Commemoration
Launching of Bohol Island Geopark
Symbolic unveiling of Chocolate Hills Geopark Marker




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Bohol Island Geopark

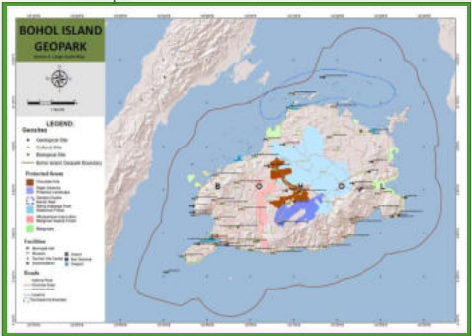
Nov 2018
Submission to UNESCO
July 2019
UNESCO Evaluation Mission




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Bohol Island Geopark




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Important Bohol Geosites

Chocolate Hills




UNESCO Global Geopark Focus Areas:
Education
Science
Geoconservation
Sustainable Development

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Important Bohol Geosites

Maribojoc Uplifted Terraces



UNESCO Global Geopark Focus Areas:
Education
Science
Climate Change
Geological Hazards

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IV. Damages

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VI. Bohol Island Geopark

Inabanga Ground Rupture

Photo: PHIVOLCS



UNESCO Global Geopark

Focus Areas:

Education

Science

Climate Change

Geological Hazards

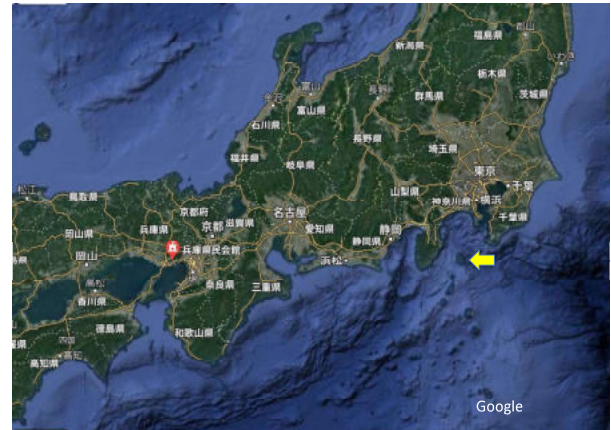
Bohol Island Geopark | 19



ジオパークのガイドとして思うこと

伊豆大島ジオパーク
グローバルネイチャークラブ
西谷香奈

伊豆大島はどこにある？



伊豆大島は活発な火山の島

東京から南へ約120km
年間4cm富士山に向かって移動中
2万5000年前水面に出てきた海底火山。100～200年周期で大噴火。

江戸時代後半からは、36～38年
間隔で噴火継続中。

**地球の動きを体感できる島！
災害が身近な島！**

全国地質業協会連合会Webサイト
<https://www.zenchiren.or.jp/tikei/plate.html>

過去100年以内の自然災害

- 噴火** 1957年 死者1名 重軽傷者53名
- 1986年 山腹割れ目噴火で全島民島外避難
- 地震** 1978年 伊豆大島近海地震(震度5)
住宅一部損壊150軒
- 1923年 関東大震災 岡田地区津波波高12m
死者7名 家屋全半壊117軒
- 台風** 1958年(狩野川台風) 死者2名 家屋全半壊104軒
2013年(台風26号による土砂災害)
死者行方不明者39名、家屋全半壊77軒
2019年9月(台風15号による家屋全半壊)
- 大火** 1965年 元町408世帯焼失

たとえば元町に生まれ育った63歳の知り合いは...



私自身も2013年10月16日
台風の大雨による土砂災害を体験
(33名死亡3名行方不明)



多くの島民にとって予想外の出来事
狩野川台風の経験はあったが...

言えなくなった言葉



この言葉の奥には、たくさんの人の恐怖、苦しみ、悲しみがあることを知った

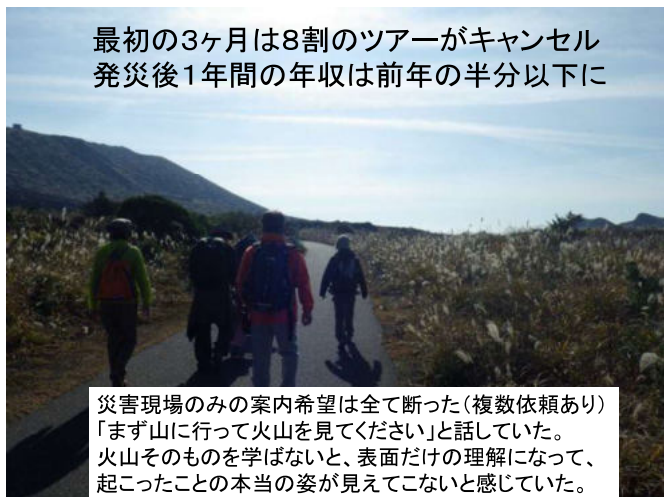
「火山が噴火しなければ、波に削られてやがて島は無くなってしまおうでしょう。噴火が作った地面の上に、私たちは暮らしているんです。」

半日山を歩きブログで情報発信 半日泥かきボランティアの日々



火山の大きさを体感した

最初の3ヶ月は8割のツアーがキャンセル
発災後1年間の年収は前年の半分以下に



災害現場のみの案内希望は全て断った(複数依頼あり)
「まず山に行って火山を見てください」と話していた。
火山そのものを学ばないと、表面だけの理解になって、
起こったことの本当の姿が見えてこないと感じていた。

2013年11月2日(災害17日後)
初めてのお客様



住民セミナー

11月17日(災害1ヶ月後)



溢れるマスコミ情報に住民は不安。町は説明会を開く余裕が無い。道路が原因で崩れたという声も複数聞かれた。

ジオパーク推進委員会と東大地震研究所共催の説明会を実施。

参加者数160名



感想(アンケートより)

9割が「良かった!」

1割が「聞きたいのは、明日どうすればいいか」

科学が間に入ること、
感情的にならない。

私の仕事はジオガイド。様々なお客様と歩いている。(年に160日前後ツアー)

何かを語り継いでいるのか?



熟年夫婦

仕事仲間

「水源の会」の研修



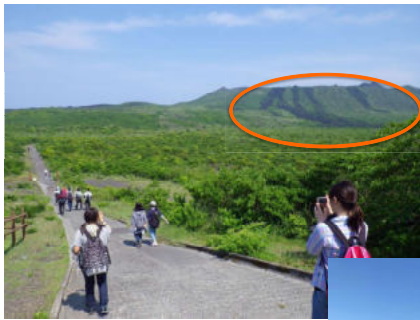
高校の理科授業



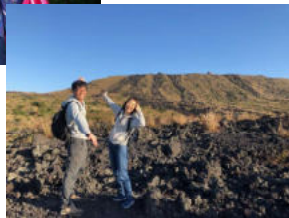
3世代家族



ひとり旅



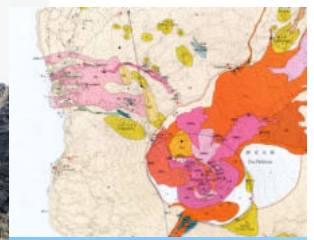
歩いて、見て、触れて、
想像して...



地球(火山)は
生きている！



溶岩流の断面を観察しながら...



人の暮らしも災害も
全て大地と
つながっている！

科学は日々進歩しているが
わかっていないことがたくさんある！
(人は地球の活動に抗えない)



火山観測機器の働きを紹介しながら...

2013年大雨に掘られた大地は...



風がくぼみを埋め、元に戻していった！



昨年9月の暴風でなぎ倒された山の植物は...



(写真は台風3日後)

台風の後、地面から若葉を
伸ばし始めた！



暴風で樹皮を剥がされた木は...



わずかに残った樹皮から再生を始めた！

生命ってすごい！



私がしているのは“語り継ぎ”というよりも
目の前の景色や体験を通しての“思い”の共有？

地球も人も全ての生き物も
つながりあい、変化しながら
ただ一度きりの大切な時を生きている

地震、津波、暴風雨、土砂崩れ、火山噴火などは全て、地球の活動によって起こるもの。
これらの人が抗うことのできない大きな力は、風景を一変させ、私たちの心身にとても大きな
ダメージを与える。でも人も生き物も必ず再生しようとする...つながりあい、変化し続ける。
目の前の景色や体験を通じ、地球と生命がつむぎ出す物語を、お客様と一緒に楽しみたい。

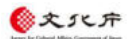
伊豆大島には、次の噴火が迫っています！
(噴火間隔が今まで通りなら、あと3～5年で噴火)



今後、大きな災害が起きても...

ジオガイドとして備えて、生き残って
ありのままを見て、伝え続けていきたい





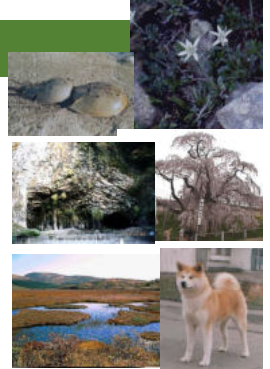
天然記念物の保存活用と地震断層 Conservation of natural monuments and earthquake faults

柴田伊廣（文化庁文化財第二課）
SHIBATA Tadahiro
Cultural Properties Second Division,
Agency for Cultural Affairs-Japan

北淡震災記念公園

What is a Natural Monuments?

- First nature conservation law in Japan.
- 2020th is the **100th anniversary** of the designation of the first natural monument.
- Animals, plants and geological sites. **It is of high academic value for Japan.**
- Number of natural monuments : **1,031**
※**10 active faults** have been designated as natural monuments.



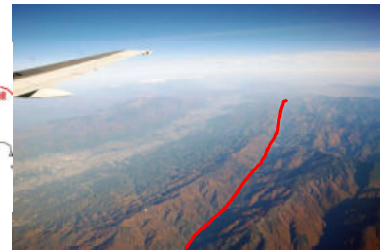
Landscape created by Earthquake, landslide...etc



Japan's longest fault system(MTL).



提供：中央構造線博物館



写真提供：中川和之

Akiba highway was created along the fault topography.

People passing the Akiba Highway passed culture from urban areas to mountainous areas.



Faults are indispensable for understanding and developing culture.

写真提供：大鹿村教育委員会

Futagawa Fault Zone

提供：熊原康博(広島大学)・
大学合同地震断層調査グループ

- Mashiki town, Kumamoto Pref.
- **Source fault of the 2016 Kumamoto earthquake**
- Following the magnitude 7.3 earthquake, a surface earthquake fault of about **31 km in length appeared**, and the ground caused a right strike-slip of up to about 2.5 m and a vertical step of about 1 m.
- 3 places of the Futagawa fault zones have been designated as natural monuments.



Narrative testimony
(October 2017)



Today, I thought it was a study for a narrator. Japan is a land where typhoons, volcanoes, earthquakes and tsunamis occur. As a person living near the fault, I would like to tell you how to live and how to deal with natural disasters.
I didn't remember the teacher's class, but it was fun anyway.



Sugido, Mashiki town
(Shioi Shrine)

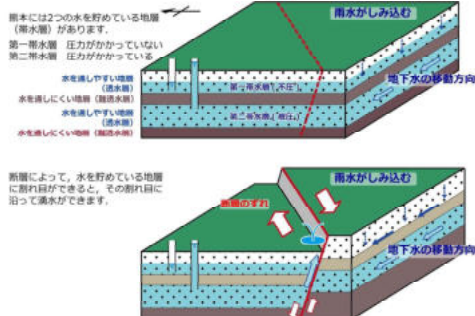


Sugido, Mashiki town
(Shioi spring water)

Map of springs at Mashiki Town



熊本の地下水と断層



Education to learn the relationship between the earthquake and the formation of Mashiki town .

Terrain created by earthquakes taken by children.





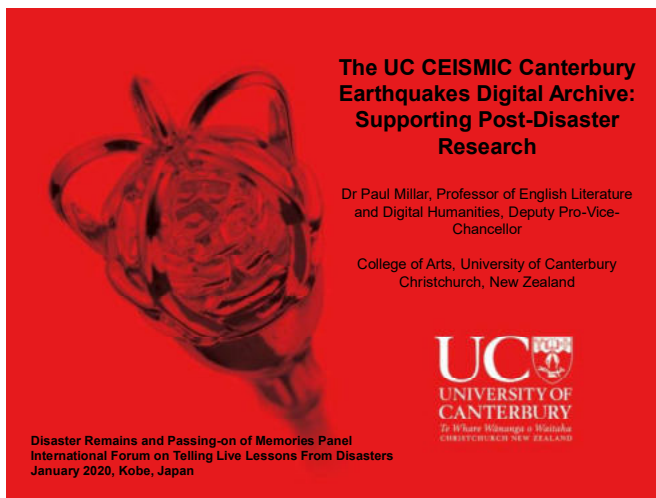
Active faults preserved as natural monuments are ...

"The real thing" used to pass down disasters



"The real thing" to talk about local identity

ポール ミラー
Paul Millar



The UC CEISMIC Canterbury Earthquakes Digital Archive: Supporting Post-Disaster Research

Dr Paul Millar, Professor of English Literature and Digital Humanities, Deputy Pro-Vice-Chancellor

College of Arts, University of Canterbury
Christchurch, New Zealand

UC
UNIVERSITY OF
CANTERBURY
Te Whare Wānanga o Hōkio
CHRISTCHURCH NEW ZEALAND

Disaster Remains and Passing-on of Memories Panel
International Forum on Telling Live Lessons From Disasters
January 2020, Kobe, Japan

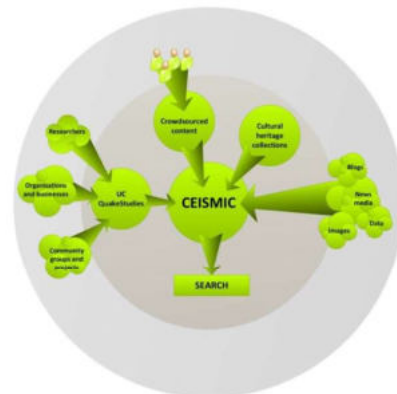



**He aha te mea nui o te ao?
He tangata! He tangata! He tangata!**
What is the most important thing in the world?
It is people! It is people! It is people!



CEISMIC: Canterbury Earthquakes Digital Archive

- 200,000+ items
- Stories, images, documents, video, and audio
- Mix of research, community, cultural heritage and crowd-sourced content
- A specialised search engine, powered by DigitalNZ

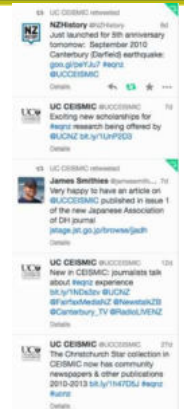
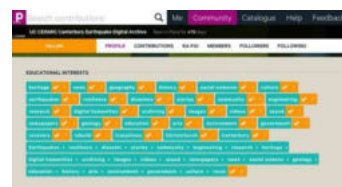





Photographs: Copyright, Fairfax Media NZ





SCIRT
Learning Legacy
UC launches Earthquake Scholarships



The QuakeBox Korero Mai: Tell Us Your Story



Collected from April-December 2012
8 different sites across the city
722 stories collected in 13 languages
120 hours of video, and 800,000 transcribed words

Retelling post-disaster stories facilitates

- Analysis of evolving narrative structure
- Understanding of the way people think, feel, respond and communicate
- Consideration of the changing relationships between people, spaces and places
- Investigation into how changes to stories relate to post-disaster factors



CEISMIC
Canterbury Earthquake Digital Archive



Te Kāhui Roro Reo • New Zealand Institute of
Language Brain & Behaviour

Individuals' stories are

- Efforts to make sense of the world in crisis and uncertainty, to regain order and facilitate recovery
- Cultural performances that can foster dialogue, debate, and social action.
- Show us what is personal and absent in the languages of public issues, policies, and broad population studies



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Individual Stories vs Official Accounts

- Stories resist idea of disasters becoming safe and controllable over time
- In times of great grief and passion they have been employed or appropriated to covertly politicise disaster behind guises of nation building or patriotism.
- **Disaster Narratives vs Resilience Narratives.** A crucial distinction if 'resilience' depends on a progressive-oriented dominant narrative that views the devastation and rebuilding of cities as a version of capitalism's process of 'creative destruction'.
(Vale and Campanella, *The Resilient City: How Modern Cities Recover from Disaster* (2005) p.15)
- Stories resist efforts to homogenise or valorise disaster by, for example, revealing disaster vulnerability, impact, response and recovery to be profoundly gendered or ethnicity-based.



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Narrative accounts of Māori experiences

- Resilience and rejuvenation within whānau and communities
- Cultural confidence, whanaungatanga (social capital) and individual experiences of mana motuhake (agency/self-determination) in disaster responses and recovery
- Impact of the pre-existing socio-economic disadvantage on experiences of community resilience
- More vulnerable to natural disasters when government policies 'fail to respect indigenous rights and fail to acknowledge the relevance of indigenous knowledge to both social and environmental recovery'



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Members Resources UC Quakebox Project Disaster Stories 22 Mar 2012 - 27 July 2012 Tracey Taia's earthquake story Video of Tracey Taia's earthquake story

Video of Tracey Taia's earthquake story

'four days being at home with no power and water... you could hear the helicopters the police sirens ... [like] a war zone'.



Preservation and utilization of disaster remains

A case study of the Mt. Unzen Fugendake eruption disaster and the Great East Japan Earthquake tsunami

Sanriku Geopark promoting office
Coordinator Shinichi SUGIMOTO

Outlines of volcanic disaster at Unzen



- Started on November 17, 1990
- End in February 1995
- continuous growing of lava dome
- Generation of pyroclastic flows due to partial collapses of the lava dome.

The Disaster remain of Unzen Volcano



Remains of a disaster in the eruption of Mt.Unzen.

- Ohnokoba elementary school building burned down by pyroclastic flow
- damaged houses by the debris flow

Process of the preservation of Disaster remains

- By the suggestion of inhabitants.
- Support of the expert from the outside.
- Ohnokoba elementary school
 - ① Request for volcanic sightseeing from residents
 - ② Reflected in the town's reconstruction plan
 - ③ Preservation and maintenance as a memorial base
- damaged houses by the debris flow
 - ① Residents need funds for reconstruction
 - ② The prefecture approved the request and bought it
 - ③ Conservation and maintenance as a memorial park

The relations between revival plan

Not only direct damage the city of Shimabara.
A big influenced was given a whole Shimabara peninsula.

●The settled reconstruction plan

The revival plan was development by the local inhabitants and company, various groups repeated a discussion as well as administration all in one body.

●revival plan

- ① Reconstruction of life
- ② To build disaster prevention city
- ③ Regional revitalization

Volcano tourism is planned, and preservation and maintenance of disaster remains.

Great East Japan Earthquake tsunami



- Occurs at 2:46 pm on March 11, 2011
- Tohoku district Pacific coast earthquake of magnitude 9.0
- Strong shaking and domestic observation history maximum tsunami of maximum seismic intensity 7.
- It brought serious damage in the wide range around Tohoku, the Kanto district.

Process of the preservation of disaster remains

- The problem of “disaster remains” is highlighted as a symbol of “pass down of disaster”
- Residents' opinions are divided, and local governments cannot make clear policies.
- Disaster remains and planned disasters are removed one after another.
- Government support for preservation of earthquake remains.
- Securing sufficient time for discussion on the preservation of the remains of residents.

Remains which were trying to store by Great East Japan earthquake disaster

- Preservation of disaster remain is being promoted by the government.
- In some cases, preservation has not progressed due to conflicting opinions among residents.

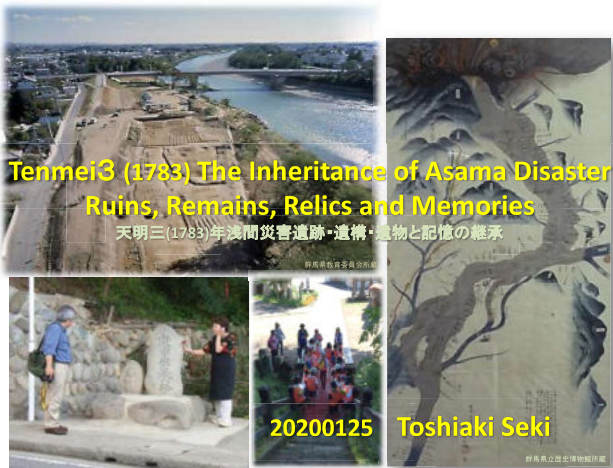


The remains of structure which was not able to store

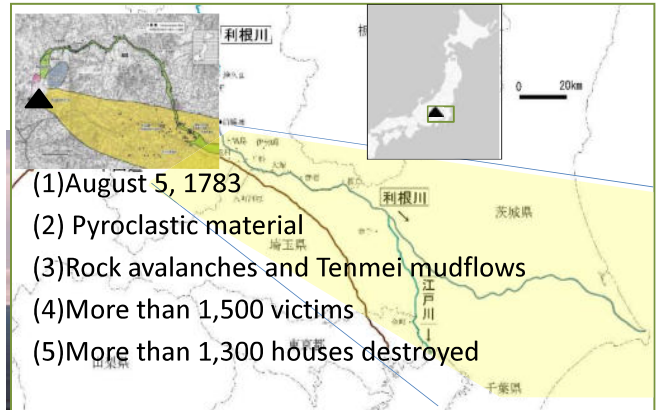
- Minamisanriku disaster prevention government building
 - A direction of the preservation at first
 - An express a policy of the removal in September 2013
 - The local voice was divided over the preservation or dismantling of the government building.
 - Prefecturally preserved for 20 years after the earthquake, then final decision
- Otsuchi-cho government office building
 - Reconstruction volunteers lead the preservation campaign
 - The town council rejected the petition for conservation
 - The mayor sets up a review committee and decides to preserve some of the reports.
 - Candidates who promise to dismantle in the mayoral election
 - Final dismantling completed

One necessary for preservation and utilization to disaster remains

1. The activity that inhabitants were made up mainly
2. For connected with revival plan
3. Support of the expert who administration and inhabitants contact part
4. With a process for the preservation , it is important that I find a route of the utilization at the local whole including explanation and the disaster prevention education by local guides



1. Overview of the Asama Disaster in the Third Year of Tenmei



- (1) August 5, 1783
- (2) Pyroclastic material
- (3) Rock avalanches and Tenmei mudflows
- (4) More than 1,500 victims
- (5) More than 1,300 houses destroyed

2. Excavation of the Tenmei3

- Conducted only in Gunma Prefecture
- The same time axis due to the phenomenon of disaster
- The Edo Period Archaeology In Response to Literature and Tradition
- Elucidation of disaster



- [Oral] : "(return to take the family mortuary tablet) After saying goodbye farewell Gosuke...."
- [Relics / Tradition]: "The wooden parts of the damaged houses are part of the Buddhist altar"
- [Remains] :Example of conveying recovery and reconstruction: recovery earth mine



3. Excavation of Kamahara Kannondo, the stage of the sad story



→Unearth of local old people progresses to academic research

The only museum dealing with this disaster



Unearth of local old people advances into academic research
→The place where the residents' identity is based

4.Monuments (Natural Objects and Disaster Topography)



5. More than 390 items (local journals)

"One generation" = 30 years



5.(1)Episodes related to the 33rd memorial service

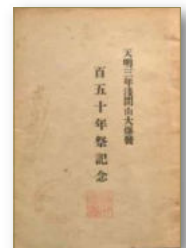
- Feeding Monument
- Publishing things
- Fiction
- Drawing
- the act of transcribed a damage record



→Generational change: Things handed down (1st and 2nd generation)

5.(2)Anniversary events

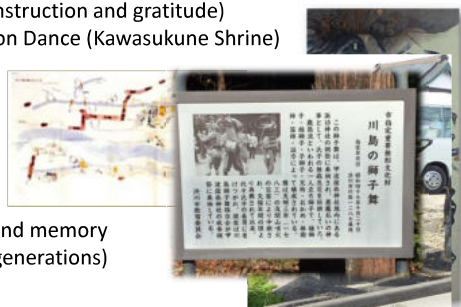
Anniversary events that have been held in the year of the break



→With the thought of the memorial service, the recollection of a new memory

5.(3)Things that remember reconstruction and damage

- 「浅間焼吾妻川利根川泥押絵図」(Damage Drawing drawn 73 years later)
- 「植野堰・広瀬桃木堰絵図」(41 years later)
- "Sintaikannnonnhi" (A monument with a sense of thanks ,47 years after reconstruction and gratitude)
- Revival of the Lion Dance (Kawasukune Shrine)



→Reconstruction and memory arrangement (2-3 generations)

5.(4)Discovery of relics in the riverbed and sediments

- The Bells of Jorin-ji Temple(127 years later)
- Gate stone of Enmei-ji Temple(134 years later)
- The horse's head Kannon built 11 years before (around180 years later)



→A series of contingent discoveries brings back new memories (5-6 generations)

5.(5)Discovery in the former village of Kanbara

- Discovery of relics associated with the construction of charcoal-grill
- Discovery of the victim during construction grounds work
- Unearth of relics by the local geriatric association and old-fashioned volunteers



→The action of recalling the memory by the relic, and tracing their ancestors (6-7 generations)

5.(6)Academic research begins

- "Comprehensive Survey of Buried Villages at the Foot of Mt. Asama"(1979-)
- Discovery of two bodies of victim under the stone steps (1979)
- Excavation of other towns and villages in the lower reaches
- Opening of the Tumagoi Local Museum(1983)

→Media, textbook description for students, many visitors, local service association activities, etc. for archaeological surveys

→To tell down and establish their own identity(7 - 8 generations)

5.(7)Quiz Rally rounds Remains



→Activities to use the power of "education" to pass on to the next generation in local events (8-9 generations)

*8 generations since the disaster occurred,240 years

①The remains and relics/ the real thing have the power to move people's hearts

②anniversary event / "social wisdom" to overcome sadness

③It is also able to follow the footsteps that have been carried out in the course of time axis / historical disaster

④4 "Memories of Disasters" ... "Telling"

"Creating a mechanism for society to remember"

Taiwan's 921 Earthquake

Difficulties and Challenges Faced by
the National Museum of Natural Science

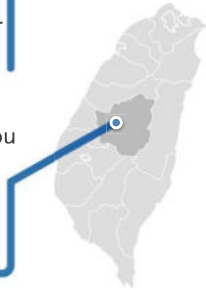
国立自然科学博物館は台湾921
地震の困難と課題にどのように向
き合うべきでしょうか？

Cheng-Shing Chiang*, I-Min Chen, Ling-Ho Chung, Chia-Hsin Tsai, Xin-Hs Lee
蔣正興, 陳怡民, 鍾守和, 蔡世欣, 李信和
National Museum of Natural Science, Taiwan 國立自然科學博物館, 台灣



Chi-Chi Earthquake (921 Earthquake)

- Local date 21 September
- Magnitude $M_w = 7.3$
- Depth = 8 km
- Epicenter Chi-Chi, Nantou
- Casualties = 2,415 killed



Damage to Kuangfu Junior High School During The Chi-Chi Earthquake

Photo by 小林郁雄



Preserving Damaged Buildings to Create the 921 Earthquake Museum



Difficulties and Challenges Faced By the 921 Earthquake Museum of Taiwan

台灣921地震教育園區の困難と課題



Public
opposition



Time
pressure



Reduced
funding



Aging building
and facilities

Multipurpose Venue for Rescue Dog Training



Zhushan Site for Studying Paleo Earthquakes



Chelungpu Fault Preservation Park for Earthquake Relics Preservation



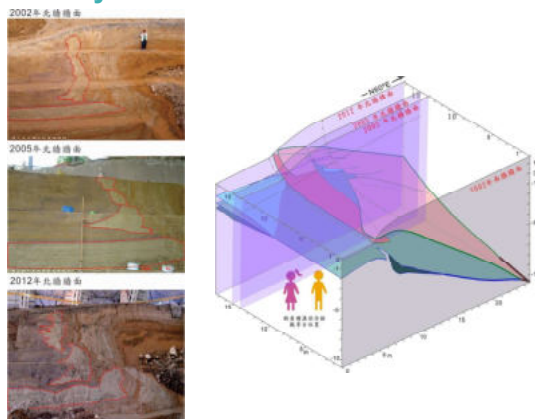
Difficulties and Challenges Faced by the Zhushan Museum

- Exhibition preservation and maintenance
- Construction difficulties

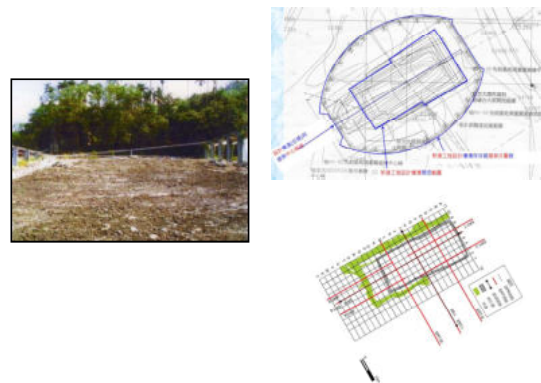
Evolution of Fault Trench (2002-2005)



History of Trench Excavation



Early Difficulties at the Zhushan Site



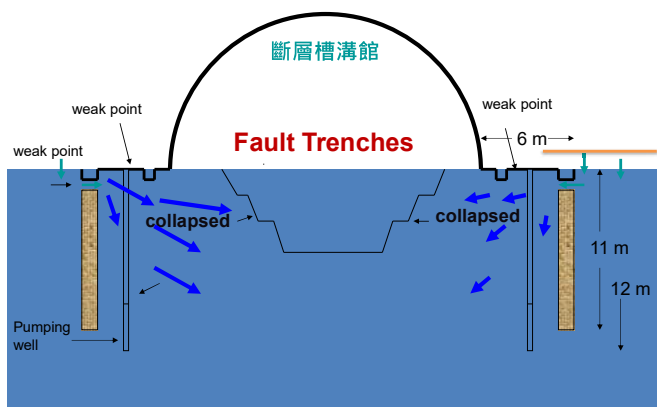
Difficulties Encountered During Construction of the Zhushan Site



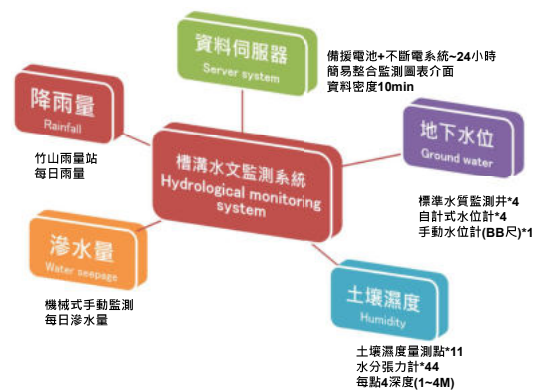
Evolution of Fault Trench (2013)



Analysis of Water Seepage in Fault Trench



Hydrological Monitoring System



Conclusion

- The funding for museums in Taiwan is mainly from the government. Although stable, there are year-on-year reductions, making it necessary to find external revenue resources. As buildings and facilities become older, maintenance costs increase year on year.
- Taiwan is often in the path of typhoons. It is not easy to protect the soft soil layers or prevent trench collapses due to water seepage.



Why didn't the residents preserve the disaster remains? —A case of the Great East Japan Earthquake and Tsunami—

2020 International Forum on Telling Live Lessons from Disasters
Disaster Remains and Passing-on of Memories
25 January 2020
Nao SAKAGUCHI (Tohoku University)



Disaster Remains

- Even though it is a disaster-prone country, there are few buildings in Japan that have been preserved as disaster remains.
- After the Great East Japan Earthquake and Tsunami, the striking images of giant ships carried ashore and buildings with casualties have come to be places for prayers or icons of the disaster. This has caused emotional conflict to emerge among the surviving residents.
- The Japanese government announced that it would fund the initial cost of preserving the disaster remains, that is to say, the tsunami-damaged buildings and structures (Nov. 15, 2013).
- A total of 12 disaster remains in 9 municipalities were preserved, out of a total of 26 disaster-stricken municipalities in Iwate and Miyagi Prefectures (2018).
- It can be said that the Great East Japan Earthquake and Tsunami was the first disaster to widely and genuinely raise the question of how to handle disaster remains.
- The definition of the disaster remains by researchers and governments have been broad and fluid. On the other hand, the meaning and purpose of the disaster remains has been narrow and superficial.

Aspects of the Great East Japan Earthquake and Tsunami



- Many missing (15,895 dead, 2,539 missing)
- Survivors wish to keep connected to their missing family members
- Traces and remains of the homes lost: people identify the story of their lives with once-familiar things which have lost their original function
- For residents, the disaster remains evoke not only memories of the tsunami, but also of their daily lives before the tsunami.
- For survivors who have experienced the disaster, to preserve the disaster remains widely means to "console the souls."

The Ship "Kyotoku-maru" in Shishiori District, Kesennuma

(Disassembled in October 2013)

Tourist Spot = Spectacle; Residents Opposed

A former chairman of the Shishiori District Residents' Association who was a crew on a Northern Pacific salmon fishing boat commented:

- "Ships rust away. To imagine seeing it fall into ruin..."
- "Ships should be on the sea. That's the old rule of the sea." To properly mourn for the spirit of the ship, the ship should be disassembled.

→ Shishiori District was home to many seafood manufacturers before the disaster, but this elderly former fisherman's comment reveals his feelings towards the sea and the ship.



Source: Kohoku Shimpō Newspaper, Aug. 26, 2012

A Dispute over the Sightseeing Boat "Hamayuri" in Akahama District, Otsuchi Town, Iwate Prefecture

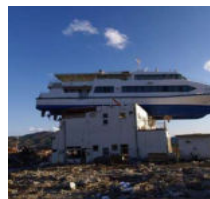
Local Women's Club Advocated for Promoting Tourism and Creating Jobs; Turned into a Conflict Among Residents

The women of Akahama District were actively involved in local activities.

Underlying was the life structure specific to the fishing community: men at sea & women on land.

→ Financial Independence

Husbands were on the crew of Northern Pacific salmon fishing boats which flourished until the 1970s, and deaths by accidents at sea were not unfamiliar. Women took initiative and were creative in their labor, and took pride in playing an important role in their regional economy.



What it means for the local survivors

The locals do NOT view the disaster remains as means to provide education for disaster prevention and pass down memories for future generations.

They instead find purposes of keeping the remains in connections to the daily local life they have had.

It is essential to focus on the process of formation of the meanings.

Former Municipal Hall Building in Otsuchi Town, Iwate Prefecture



Photo as of July 24, 2011

Background Story of the Demolition of the Former Municipal Hall Building

- Built in 1954. Served as the hub of the town for more than half a century.
- The mayor and 27 officials who were setting up disaster headquarters in front of the building immediately after the quake lost their lives to the tsunami.
- The next mayor, elected in August 2011, officially announced partial preservation of the building as a message for future generations.
- The following mayor, elected in August 2015, campaigned for demolition, reigniting a town-wide debate.
- The budget for demolition was approved in March 2018, leading to the establishment of a citizen's group calling for the ruin's preservation. Their petition to suspend the demolition work was rejected in court. The demolition work was completed in March 2019.



"A Scene of Shame"-- The reason given for its demolition (by a man in his 60s at the time of the disaster)



Shame Culture in Japan

Benedict, R. The Chrysanthemum and the Sword (1954), Sakuta, Keiichi (1986), Terasawa, Masaharu (1985)

- A sense of self-affirmation such as strong assertiveness and having a feeling of superiority which is self-consciousness against one's own value being accepted and appreciated by others / A sense of humiliation from having one's value denied by others: These two contradicting aspects were experienced by each individual living in Otsuchi
- **Direct Shame:** that the then Mayor and government members became the victims of the disaster from their misguided actions. Feeling a sense of humiliation as if one's experience preceding the disaster was also denied.
- **Indirect Shame:** Nostalgia for Otsuchi's times of prosperity, together with recollection of one's own responsibility living through Otsuchi's social decline. A sense of self-reflection

Why Did the Residents Decide Not to Preserve the Otsuchi Town Hall Building?

How the Media Described the Story of the Former Town Hall Building to the Outside World

News reports discussed the administration's functional issues, which turned into the idea of preservation serving as justice.

To the residents, the town hall building is a symbolic landmark (merkmal) which nurtured love and pride for their hometown.

However, through the dispute over the former city hall building, it was exposed to the public that Otsuchi had been suffering social and economical stagnation before the disaster, and was also continuing to suffer from social issues after the disaster. This two-pronged feeling of defeat and discord revealed itself as shame.



- The survivors of the disaster remember the disaster remains in 3 separate phases; pre-disaster, disaster, and post-disaster.

These memories bring confusion and conflicts in people. The survivors go through the process of reclaiming themselves through communications in emergency shelters and discussions at community or reconstruction meetings.

- For the locals, the disaster remains bring real and live memories of disaster that continue to transform as time passes. Thus, the disaster remains has not become a part of history yet. For the locals, the remains still constitute meanings in their life and society.

- Memories of the disaster remain as;

“The symbol of disaster ” created through the time of disaster and the right aftermath. Wants to utilize the remains as much as possible.

“The symbol of pre-disaster” held mainly by the generation that went through the revolution of lifestyles

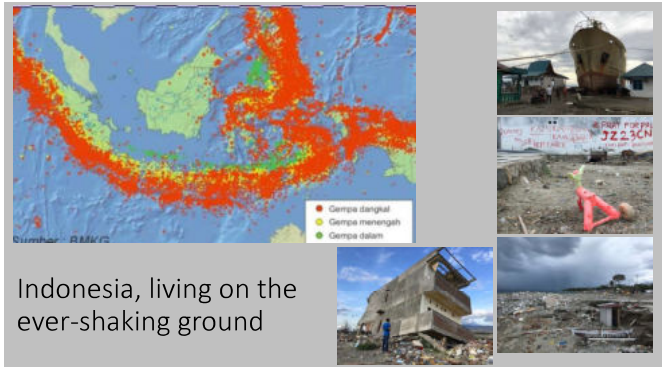
→ Two meanings come and go in people's memories.

2020 international forum on telling live lessons from disaster-kobe japan

extending the memory of the community toward disaster preparedness

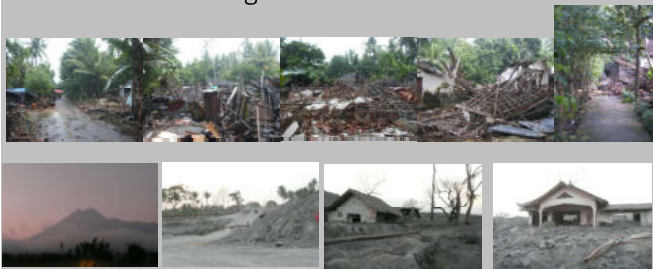
from myth , scientific explanation and popular culture

eko prawoto | duta wacana christian university- indonesia

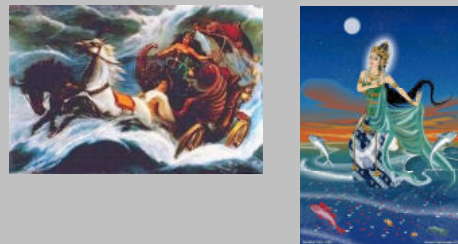


Indonesia, living on the
ever-shaking ground

the moment to forget and to remember



after the disaster....
the myth from the past appear again as an 'explanation'



the spirit of togetherness as
the most important social capital

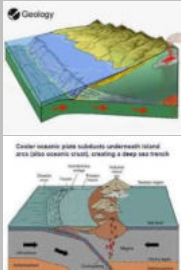
physical recovery - interregional cooperation



the ritual as an extension of the memory



reaching the next generation
scientific explanation, would it be sufficient?



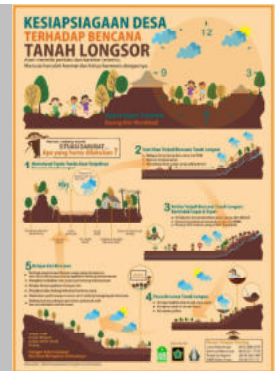
the power of myth
pop art as media
touching the heart of the culture



kebon harjo....
extending the memory and interregional cooperation



are we prepare?

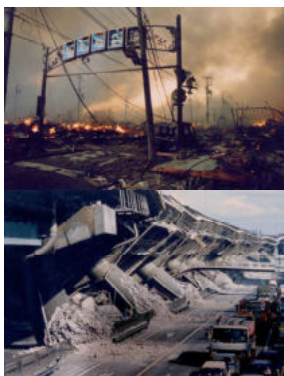




"To help one another when they are at the difficult time"

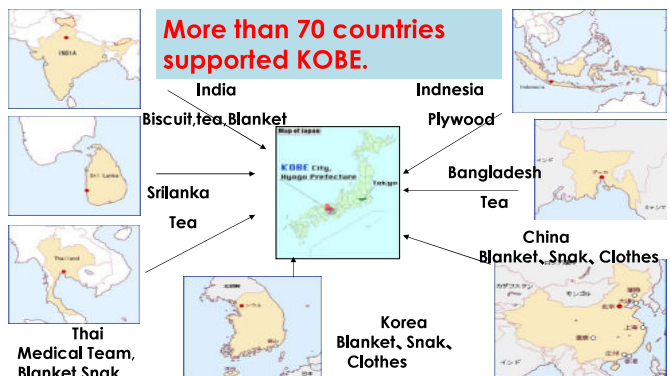
We thankfully had a huge support from over 70 countries when the Great Hanshin Awaji Earthquake hit Kobe on 17th January 1995. CODE was established to return our thankfulness. We have been supporting 35 countries and regions and implementing 62 relief activities.

Citizens toward Overseas Disaster Emergency



The Great Hanshin-Awaji Earthquake (KOBÉ Earthquake)

Magnitude: 7.2 on the Richter Scale
Death toll: 6,434
Injuries : 40,092
Houses partially or completely destroyed in the quake: 240,954
Houses partially or completely destroyed by fire: 7,456

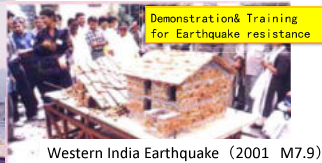


Distribution Relief goods



Sakhalin Earthquake (1995 M7.5)

Demonstration& Training for Earthquake resistance



Western India Earthquake (2001 M7.9)

Regenerate Grape Field (Microfinance)



Afghanistan War & Drought (2003~)

Education of DRR& Fishing Support



Sumatra Earthquake&Tsunami (2004 M9.1)

Construction Training ceter for women



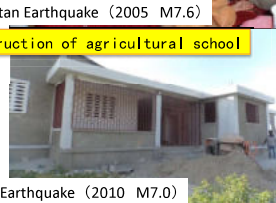
Pakistan Earthquake (2005 M7.6)

Building a local culture center



Sichuan Earthquake CHINA (2008 M8.0)

Construction of agricultural school

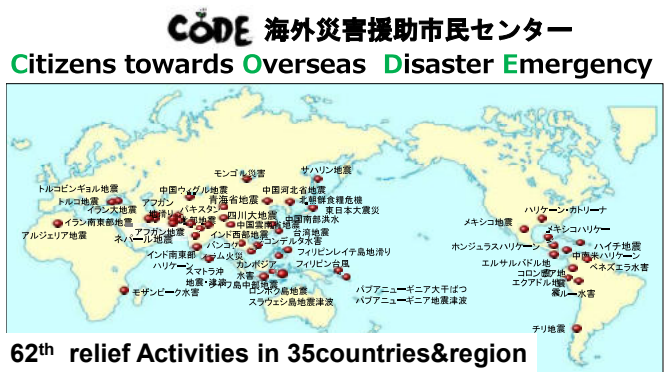
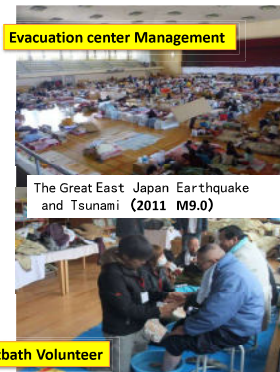


Haiti Earthquake (2010 M7.0)

Fishing support



Philippines Typhoon (2013)



CODE's Relief Activities & Exchange

- 2008 Sichuan Earthquake in CHINA
- 2010 Chili Earthquake/Tsunami
- 2018 Lonbok Earthquake
 Sulawesi Earthquake/Tsunami
 Sunda Strait Eruption /Tsunami in INDONESIA

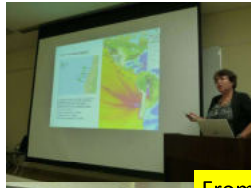
Sichuan Earthquake

Date: 12/May/2008 14:28 (Local time)
 Scale: M8.0
 Affected Area : Around 400km from Chengdu to the northeast
 Affected peoples: 46.24million peoples
 Death: 69,226 peoples
 Injured: 374,643 peoples
 Missing: 17,923 peoples
 House damage: completely 216,000
 partially 4150,000
 School damage: 7,000
 Total affected Area:
 総被災面積: 500,000km²
 (1.3times of Japanese land)



Chile Earthquake

Date: 27/feb/2010 3:34 (Local time)
 Scale: M8.8 (5th largest in history)
 Epicenter: 107km north-northeast of Concepcion
 Deep: 35km
 Tsunami run-up height: Max 28m
 Average: 5m~9m
 Death: 802 peoples
 (about 500 peoples were killed by Tsunami)
 Affected peoples : 200,000
 Affected Area : Talcahuano (6~10m)
 Dichato (6~9m)
 Robinson Crusoe Island (10m)



From Affected area to Not yet area

A NGO staff learned About Disaster Prevention in Kochi. And She conveyed Chile's experience to Kochi

Indonesian Disaster



「Lombok Earthquake」

Date: 29/July, 5/Aug, 19/Aug /2018
 Epicenter: Northeast of Mataram,
 West Nusa Tenggara
 Scale: M6.4 (29/July), M6.9 (5/Aug), M6.9 (19/Aug)
 Death: 555 House damage: 74,000

「Slawesi Earthquake/Tsunami」

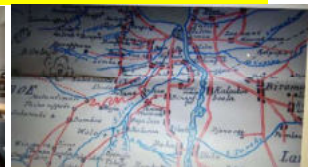
Date: 28/Sep/2018
 Epicenter: About 80km north of Pal,
 Middle Sulawesi
 Death: 2,090 missing: 680 House damage: 67,310

「Sunda Strait Eruption /Tsunami」

Date: 22/Dec/2018
 Affected Area: Banten province, western Java,
 Lumpung province, Southern Sumatra
 Death: 426 Missing: 29 House damage: 1,527



Learn each other traditional wisdom with local people



「Keeping Memories Alive」

learning from support and exchange in affected area

- * Not only people tell but nature speaks
 (Ex :100year foresting, Tidal forest = Eco-approach)
- * Even if it is not transmitted in words, it may be transmitted through songs, place names, and traditions.
 (Ex :Shiawase hakoberu youni, Jono-oge, Smong, Tsunami-tendenko)

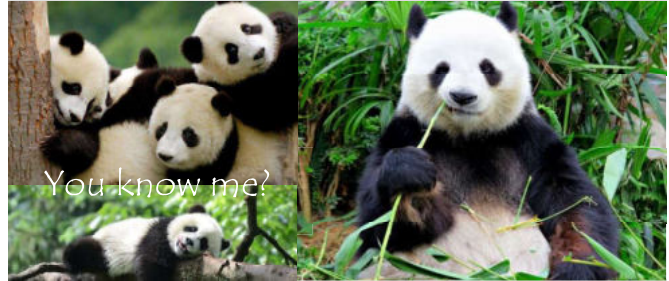


Research on Status and Solutions of School Disaster Education —China-Japan Cooperation and Response

Guoyuan Zhang, President & Associate Professor
New Century Institute of Education Safety Science and Technology,
Beijing City University

Kobe, Japan
March 27, 2020

I'm from Sichuan



2008 Sichuan Earthquake



Indicators	Loss
Seriously Damaged Areas	> 100,000km ²
# of death toll	69,227
# of injured pp	374,643
# of missing pp	17,923
# of dead & missing students	5,335
Direct Economic Loss	RMB 845billion



2018 Loss of Natural Disasters in China



Indicators	Loss
Damaged Agriculture Areas	> 200million km ²
# of affected pp	130 million
# of death toll	589
# of missing pp	46
# of House collapse	97,000
Direct Economic Loss	RMB 264 billion



Development in School Disaster Education

International community attached importance

- UN's International Decade for Natural Disaster Reduction
- Hyogo Framework for Action and the Hyogo Declaration
- Sendai Framework for Disaster Reduction 2015-2030
- UNESCO-UNISDR : Competition with natural disasters: disaster reduction begins at the school

Chinese government has adapted

- China's International Committee for the Reduction of Natural Disasters
- National Safety Education Day for Primary and Secondary School Students
- China's Disaster Reduction Action
- Nation-Wide Comprehensive Disaster Reduction Model Communities
- National Science and Technology Model Schools for Earthquake Preparedness and Disaster Reduction

Overall society actively response

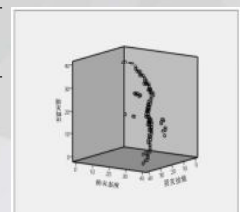
- Various government agencies and education system
- NGOs
- Communities and families



Current Situation of Students' disaster prevention literacy

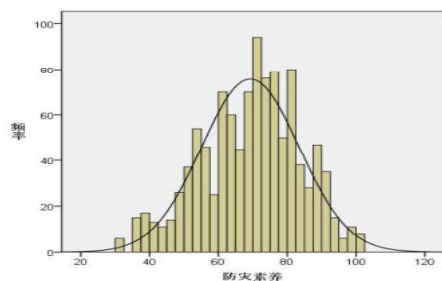
Overall level of disaster prevention and literacy of primary and secondary school students in China is low & correlations among knowledge, skills and attitudes

Disaster Prevention	Min	Max	M	SD	Failing Rate	Outstanding Rate
Literacy	12	100	60.30	11.93	48.70%	5.00%
Knowledge	0	36	18.20	5.83	70.60%	4.40%
Skills	0	36	18.87	6.25	72.40%	6.20%
Attitudes	0	36	28.10	5.00	6.60%	53.90%



NCIESST Teachers' disaster prevention literacy

Overall disaster prevention quality of teachers in China is low & correlations among knowledge, skills and attitudes





Thank you !

1. デイヴィッド ワグゴナー三世
J. David Waggoner III



2020年1月25日

- | | | |
|----|------------------------|--------------|
| 1 | Flood | 洪水 |
| 2 | Aftermath | 余波 |
| 3 | Dutch Dialogues | オランダとの対話 |
| 4 | New Orleans Water Plan | ニューオーリンズ 水計画 |
| 5 | Rebuild By Design | 設計による再構築 |
| 6 | Norfolk | ノーフォーク |
| 7 | Charleston | チャールストン |
| 8 | Louisiana SAFE | ルイジアナ 安全 |
| 9 | Present | 現在 |
| 10 | Community | 公共 |
| 11 | Memory | 記憶 |



オランダとの対話 Dutch Dialogues



ニューオーリンズ 水計画 New Orleans Water Plan



設計による再構築 Rebuild By Design



